SUGAR

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According to makers of sugar substitutes, Big Sugar has good reason to worry. But among the would-be challengers, taste isn't the only problem to solve: price is an issue, too.

Marko Pekic/E+/Getty Images-TNS

According to a recent survey by market research firm Euromonitor, 37% of consumers globally are looking for products with no sugar, no added sugar or low sugar.

Allulose

Most prominent among alternative sweeteners is a rare type of sugar called allulose. First discovered in wheat in the 1940s, it's one-third less sweet than sugar, but it also has one-tenth the calories. In 2019, the FDA said allulose could be removed from the "added sugar" line on "nutrition facts" labels because, unlike sucrose, which is quickly broken down by enzymes and turned into glucose, most allulose is excreted in urine, meaning it doesn't significantly impact blood sugar levels. Another benefit is that it doesn't promote bacteria growth, which can cause cavities.

Tate & Lyle, a $3 billion food and beverage ingredient supplier, makes a version of allulose that's "non-GMO Project verified" so as to appeal to food brands marketing themselves to health and environmentally conscious consumers. The sweetener is already found in a wide range of packaged foods, such as cake mixes and cookies. It's also used in candies such as Smart Sweets' popular gummy bears and low-carb bread sold by the SOLA Company.

"Consumers are now actually looking at sugar and added sugar with as much importance as total calories," said Abigail Storms, global head of specialty sweeteners at Tate & Lyle. Demand has swelled of late, she said, because of a pandemic proclivity for snack foods and ice cream, and due to interest in the "keto" diet — which prescribes an extremely low carbohydrate count.

However, the expense of production may be an obstacle to mass adoption. Though found naturally in some plants, making allulose in bulk requires it be produced mostly from corn in a complex chemical reaction. It's a hurdle other types of sweeteners must overcome as well.

Incredo

Made by Tel Aviv, Israel-based DouxMatok, Incredo is a reengineered version of sucrose touted as sweeter than the original. Though it still has the same potential health problems that flow from sucrose, less of it is needed to sweeten foods the same way.

About 80% of what humans consider sweetness in sugar is lost on them. Sugar molecules are tightly bound — most fail to interact with taste buds during chewing. DouxMatok said it's managed to insert tiny silica granules (a common food additive used in baking) into sucrose, which enables more sugar to spread out and be tasted before swallowing.

Two years ago, DouxMatok sent a sample to Lior Lev Sercarz, owner of La Boîte, a spice shop in Manhattan. Sercarz said he had already been on the hunt for a sugar substitute that didn't sacrifice flavor, and DouxMatok seemed to fit the bill. "We didn't have to add anything else to compensate," he said.

David Tsivion, DouxMatok's chief technology officer, said the company is hoping to land contracts with U.S. food manufacturers that produce cookies and spreads. But first, the company needs to reach price parity with sugar. Wholesale refined beet sugar averages .37 cents per pound in America. DouxMatok won't share what the pricing for his product is, but said it's definitely higher.

Supplant

Supplant is on the other end of the spectrum — it's less sweet, according to company founder Tom Simmons. His goal isn't to replace table sugar — he wants to replace it in everyday food products.

Cambridge, England-based Supplant grinds leftover fiber from plant waste, such as corn cobs, oat fibers and wheat bran, and then applies an enzymatic process to break it down into a dry white powder. The resulting product has similarities to sucrose but is lower in calories and slower to raise blood sugar levels, Simmons said. Like sucrose, it includes small chains called disaccharides which allow it to bake and taste like sugar. And because it's made from plant waste, it includes prebiotic fiber, which helps slow the body's absorption of carbohydrates.

"Sugar reduction in drinks was solved 40 years ago with diet soda. But for food products it was an unsolved problem," he said. "What we want to push back on is extensive use of white refined [sugar] that's flooding the food system."

But to do that, you need something that outperforms traditional sugar in bulk, browning and caramelization. Chef Thomas Keller, owner of Per Se in New York City and The French Laundry in Healdsburg, California, said he's been testing Supplant for the past year and a half. "These things are very intriguing for chefs," he said. "We're constantly looking for ways to make [food] more nutritious."

When he first tried to entirely swap traditional sugar for Supplant, he said it was a "real struggle." His test vehicle was a shortbread cookie he's been making for 27 years. The version he sells today at Bouchon Bakery in Yountville, California, uses a 50-50 blend of Supplant and sugar. But Keller still views it as a success: "If everyone was eating half the sugar they eat today… that changes the world."

Another baker testing Supplant is Angela Diaz, owner of You're a Cookie, a direct-to-consumer bakery out of Chicago. At first, she was skeptical. "I'm not a big fan of replacement sugars because they leave an aftertaste," she said. Supplant however "leaves no aftertaste," she said, adding that it worked well in melted fats or oils. But when baking her cookies, she also needed to mix it with regular white or brown sugar.

Supplant and Incredo are both racing to win over customers, but neither is close to allulose when it comes to market penetration. During the pandemic, London-based Tate & Lyle ran into production difficulties because of high demand, a situation that could repeat itself if a potential U.S. customer approves its use. The quality standards team at Amazon-owned Whole Foods is currently evaluating whether to allow the sale of products containing allulose, a Whole Foods Market spokesperson said.

Allulose is "Generally Recognized as Safe" (GRAS) by the FDA, a status based on submissions by the manufacturer and outside experts — not formal government studies. DouxMatok, a combination of traditional sugar and silica, already has GRAS status, and Supplant is seeking it, too. In the European Union, however, allulose still awaits approval as a "novel ingredient," which requires scientific review.

Comprehensive or independent medical studies of these sugar alternatives is largely lacking. DouxMatok hasn't done any studies backing the safety of its ingredient and Supplant said it's done one small clinical trial. Its data, the company said, showed that consumption of its product triggered a 15% lower glycemic response than sugar.

Dr. Michael Greger, a physician and author of nutrition books including "How Not to Diet," said allulose may be the most promising candidate to replace sugar, but "we just don't have a lot of good human studies that put it to the test." As a result, he's not ready to recommend it for human consumption.

Another medical expert said the entire debate may be a false one, since imitation sugar could end up being just as bad for you.

Dr. Robert Lustig, a pediatric endocrinologist at the University of California at San Francisco, said it's still unknown whether putting anything sweet on a human tongue sends the same message to the brain. It's possible, he said, that an insulin response is triggered regardless of it being sucrose or a substitute. The pancreas controls insulin response, and that controls weight gain, he explained.

"All of these companies are running around trying to figure out what to do to mitigate the negative effects," said Lustig. "The right answer is to de-sweeten our lives."

Safety and side effects of COVID-19 vaccinations for kids

BY JASON HOWLAND
Mayo Clinic News Network

With 28 million more children in the U.S. now eligible to be vaccinated for COVID-19, parents of kids 5-11 may still have questions about the vaccine and if it's safe for younger children. Dr. Tina Ardon, a Mayo Clinic family medicine physician, says that it is safe to vaccinate children 5-11 for COVID-19.

"The COVID-19 vaccine is extremely safe for our children. We have a number of studies that represent that we've had a number of children already received the vaccines, and we have been able to monitor those children closely. And we feel very confident this is a safe and effective vaccine," says Dr. Ardon.

Dr. Ardon, who is a mother of young children herself, says it's understandable that some parents may be wary of a vaccine that's been developed in a relatively short period of time, but they should not feel that it's any less safe because of that.

"I think it's important to remember we had a wealth of information about mRNA vaccines already under our belt before the pandemic started. So this helped speed up a lot of that initial research," she says. "This is an example as well of how we get everybody, all hands on deck, everyone working as hard as they can to get a really important vaccine available for our patients. A lot of the bureaucratic red tape, some of the timelines that we normally see were just eliminated because we knew this was so important. The parts of the process that are truly important not to cut corners were certainly done exactly the way they needed to be. The timelines to administer the vaccines, to follow the side effects afterward, to analyze that data — all that was done extremely appropriately. There were no corners cut."

She says the COVID-19 vaccines are similar to other childhood vaccinations regarding how they are administered and the potential side effects.

"The COVID-19 vaccines, in a lot of ways, are no different than the other vaccines we have available. They're administered in the same way, either in the arm or in the leg, depending on the age of the child. The doses are appropriate for the age of the child, as well. There's no special follow-up that has to happen after receiving a COVID-19 vaccine. And the side effects are quite similar to other vaccines, including fever, muscle aches — but most likely pain, redness and swelling at the injection site," says Dr. Ardon.

A common question asked by parents is whether the risk of getting vaccinated for COVID-19 is higher than the risk of children getting infected with COVID-19.

"Because the vaccine is extremely safe, extremely effective, we do feel that the benefit greatly outweighs any potential risks of the vaccine, which really, there are very minimal risks, if any. And the ones that we have noticed are things that we can take care of in the outpatient setting very easily," says Dr. Ardon. "The risks of actually getting COVID-19 for our patients are quite significant. We see things like inflammation of the heart, chronic lung problems. Patients may need to be hospitalized, and even can die from COVID-19 infection."

Gary Coronado/Los Angeles Times-TNS

Nicole Fahey sits with her daughter Adelina, 6, as she receives the pediatric Pfizer-BioNTech vaccination from nurse Shirley Alfonso at Eugene A. Obregon Park in Los Angeles.